

ABSTRACT

An optical memory for storing and/or reading data on an optical disk. The optical disk incorporates a material in which holographic gratings can be created, and subsequently detected, at plural locations within the disk by an electro-optical head. Creation and detection of holographic gratings with variable diffraction efficiency is possible with the electro-optical head. Multiple holographic gratings can also be created at each one of the plural locations via a beam of light which has a different wavelength or point of focus. These data elements can be read by the electro-optical head using a beam of light sequentially varied in wavelength or point of focus to correspond to the multiple holographic gratings to be recorded.